



**Australian Government**

# **NWPHYS004 Manage hydrographic surveying projects**

**Release: 1**

# NWPHY004 Manage hydrographic surveying projects

## Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

## Application

This unit involves the skills and knowledge required to manage hydrographic surveying projects.

It includes planning hydrographic survey projects, producing reports and other products whilst applying relevant professional ethics, industry standards, and national and international legislation and conventions.

This unit supports the attainment of skills and knowledge required for leaders with responsibility for performing hydrographic surveying and may lead to certification as a hydrographic surveyor.

## Pre-requisite Unit

Not applicable.

## Competency Field

Hydrographic Surveyor

## Unit Sector

Not applicable.

## Elements and Performance Criteria

### ELEMENTS

Elements describe the essential outcomes.

#### 1 Plan hydrographic survey projects

### PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- |     |                                                                                                          |
|-----|----------------------------------------------------------------------------------------------------------|
| 1.1 | Compare, interpret and apply hydrographic instructions and tenders associated with survey specifications |
| 1.2 | Distinguish the roles and responsibilities of individuals within a survey team                           |

- 1.3 Analyse proposed survey area and determine survey requirements
      - 1.4 Identify and interpret relevant documentation and product, including plans reports, geographic information system (GIS) and charts, according to workplace procedures
      - 1.5 Identify and interpret relevant metadata according to relevant industry standards and workplace procedures
      - 1.6 Determine potential legal responsibilities for conducting surveying work according to relevant workplace procedures
- 2 Conduct hydrographic surveying**
  - 2.1 Gather and analyse data telemetry in support of on-board survey data according to hydrographic survey plan requirements
  - 2.2 Manage installation, calibration and determination of the attitude and position of each sensor according to manufacturer specifications
  - 2.3 Determine purpose and application of speed of sound measurements in acoustic systems according to manufacturer specifications
  - 2.4 Determine the effects on the survey quality of vessel motion while conducting hydrographic survey
  - 2.5 Identify and analyse methods of maintaining a survey vessel and survey systems on planned survey lines and routes according to the hydrographic survey plan requirements
  - 2.6 Apply survey data quality control methods to ensure quality assurance of survey operations
  - 2.7 Demonstrate the process of on-line data validation and selection methods while conducting hydrographic survey
- 3 Produce hydrographic survey documentation**
  - 3.1 Maintain quality assurance of survey data
  - 3.2 Synthesise survey information to produce survey reports
- 4 Apply legislation and international convention**
  - 4.1 Apply roles and responsibilities according to industry standards, legislation and conventions

- 4.2 Determine types of baselines using international conventions and territorial sea limits including the use of low tide elevations
- 4.3 Apply international conventions for data collection and vessel transit within maritime boundaries

## **Foundation Skills**

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

## **Range of Conditions**

Range is restricted to essential operating conditions and any other variables essential to the work environment.

## **Unit Mapping Information**

This is a new unit. No equivalent unit.

## **Links**

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>

# Assessment Requirements for NWPHY004 Manage hydrographic surveying projects

## Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

## Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying metadata to survey information to maintain quality assurance procedures
- compiling a survey report and comparing documents associated with survey procedures to align with requirements using files, charts and reporting tools
- conducting and applying speed of sound measurements in acoustic systems
- configuring data collection and recording software for sensors and selecting sampling rates, gating and filtering settings
- creating a vessel survey line plan including:
  - autonomous vehicle lines in space and time
  - remote vehicle
  - towed instrumentation
- defining baselines and basepoints under international conventions
- demonstrating the data meets survey requirements through on-line monitoring of display and visualisation tools
- developing a survey method statement against a hydrographic instruction or tender specification
- implementing a data telemetry link between a survey infrastructure component and a survey system for real-time use
- implementing quality control procedures
- maintaining survey notes on event by event findings during data acquisition
- producing calibration reports
- setting up, integrating and testing survey systems including:
  - acquisition system time-stamping strategies
  - appropriate physical offset determinations
  - sensors
- using monitoring software to detect possible biases and errors in data

## Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the

requirements of the elements and performance criteria and includes knowledge of:

- applications and methods of on-board survey data
- base points including geodetic positions
- characteristics of international conventions including:
  - internal waters
  - low tide elevations
  - types
- compliance with survey specifications and standards
- development of current international regulations for baselines including:
  - archipelagic
  - closing lines
  - normal
  - straight
- fundamentals of professional liability relating to surveying
- international conventions on maritime boundaries including:
  - contiguous zones
  - exclusive economic zone
  - extended continental shelf
  - high seas
  - internal waters
  - territorial seas
- metadata including:
  - data types of data obtained
  - quality measures including positional, thematic and temporal uncertainty
  - lineage
  - nautical charts
  - notice to mariners
- quality assurance of:
  - on-line data validation and selection
  - survey data
  - survey operations
- phases and terminology associated with types of survey operations
- planned survey lines and routes
- project planning and techniques
- relevant documentation and product including:
  - charts
  - GIS
  - plans
  - reports
- responsibilities and potential legal liability of hydrographic surveyors

- roles and relationships of survey parameters including:
  - data coverage
  - environmental and oceanographic parameters
  - line orientation
  - overlap
  - positional accuracy and precision
  - scale
  - sounding density and spatial resolution
  - survey lines, interlines and cross lines
  - survey speed
- survey report components
- survey vessel and system maintenance
- vessel motion including:
  - angular velocity
  - speed over the ground

## Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice, international conventions and operation manuals.

## Links

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